

What is claimed is:

1. A processor which operates at a frequency of a clock signal supplied from a clock oscillator and with a power supply voltage supplied from a power supply circuit, and is capable of controlling the frequency of the clock signal and the power supply voltage, wherein

the processor controls the frequency supplied from the clock oscillator and the power supply voltage supplied from the power supply circuit so that energy consumption to process a predetermined amount of data takes a value within a predetermined range including a minimum value of the energy consumption, the energy consumption being defined by the frequency, the power supply voltage, and power supply efficiency of the power supply circuit.

2. The processor according to claim 1, comprising: -

a section that calculates the energy consumption to process a predetermined amount of data on the basis of the frequency, the power supply voltage, and the power supply efficiency of the power supply circuit; and

a controller that controls the frequency supplied from the clock oscillator and the power supply voltage supplied from the power supply circuit so that the energy consumption takes a value within a predetermined range including a minimum value of the energy consumption.

3. The processor according to claim 1, comprising;

a storage section that stores a table storing the energy consumption which is defined by the frequency, the power supply voltage, and

the power supply efficiency of the power supply circuit, and data process related to the energy consumption; and

5 a controller that controls a frequency supplied from the clock oscillator and a power supply voltage supplied from the power supply circuit on the basis of the table in the storage section so that the energy consumption takes a value within a predetermined range including a minimum value of the energy consumption.

4. The processor according to claim 1, wherein the processor has a
10 first operation mode and a second operation mode which is different from the first operation mode, and in the first operation mode the frequency supplied from the clock oscillator and a power supply voltage supplied from the power supply circuit is set so that the energy consumption which is defined by the frequency, the power supply voltage and the power supply efficiency of the
15 power supply circuit, takes a value within a predetermined range including a minimum value of the energy consumption.

5. The processor according to claim 4, wherein the processor
20 monitors a state of a battery which is connected to the power supply circuit to change the operation mode in accordance with the state of the battery.

6. The processor according to claim 4, wherein the processor changes the frequency and the power supply voltage to be set in the first operation mode according to temperature of the power supply circuit.

7. The processor according to claim 1, wherein the processor operates in the first operation mode only when carrying out a predetermined process including at least one of a download process, a displaying process of a still picture, and a recording process of an image.

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8. An electronic information device, comprising a clock oscillator, a power supply circuit, and the processor according to claim 1.

9. A method for driving a processor which operates at a frequency of
10 a clock signal to be supplied from a clock oscillator and with a power supply voltage to be supplied from a power supply circuit, and is capable of controlling the frequency of the clock signal and the power supply voltage, comprising:

controlling the frequency supplied from the clock oscillator and the power supply voltage supplied from the power supply circuit, so that energy
15 consumption to process a predetermined amount of data takes a minimum value of the energy consumption or a value within a predetermined range including the minimum value, the energy consumption being defined by the frequency, the power supply voltage, and power supply efficiency of the power supply circuit.

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10. An electronic information device, comprising a clock oscillator, a power supply circuit, and the processor according to claim 2.

11. An electronic information device, comprising a clock oscillator, a
25 power supply circuit, and the processor according to claim 3.

12. An electronic information device, comprising a clock oscillator, a power supply circuit, and the processor according to claim 4.

5 13. An electronic information device, comprising a clock oscillator, a power supply circuit, and the processor according to claim 5.

14. An electronic information device, comprising a clock oscillator, a power supply circuit, and the processor according to claim 6.

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15. An electronic information device, comprising a clock oscillator, a power supply circuit, and the processor according to claim 7.